RECLAMATION

Managing Water in the West

Draft Environmental Assessment Woodruff Pressurized Irrigation Project

PRO-EA-16-006

Upper Colorado Region
Provo Area Office
Provo, Utah

U.S. Department of the Interior
Bureau of Reclamation
Provo Area Office
Provo, Utah

July 2016

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The mission of the Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Draft Environmental Assessment Woodruff Pressurized Irrigation Project

PRO-EA-16-006

Upper Colorado Region
Provo Area Office

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U.S. Department of the Interior
Bureau of Reclamation
Provo Area Office
Provo, Utah

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Chapter 1 Purpose of and Need for Proposed Action

1.1 Introduction

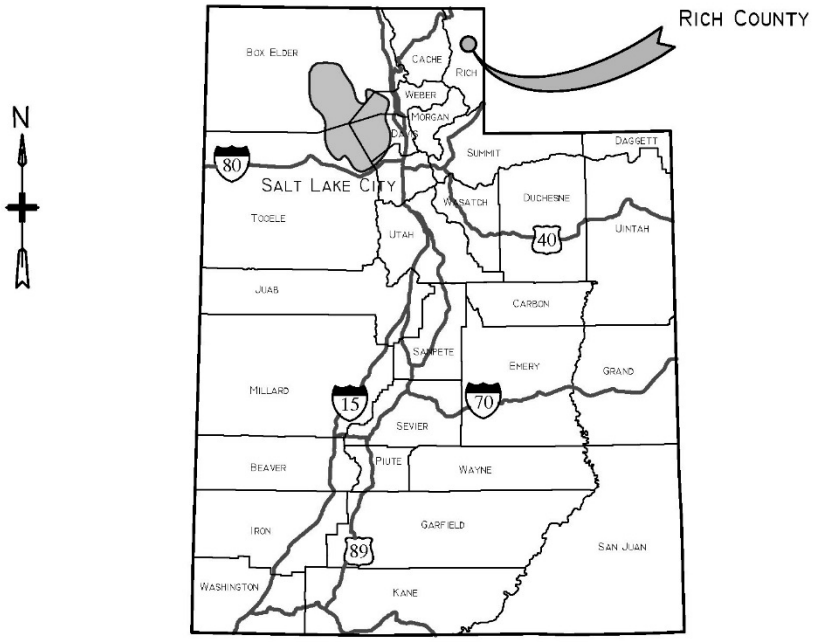
This Environmental Assessment (EA) is prepared to examine the potential environmental impacts of the Woodruff Pressurized Irrigation Project (Project), proposed by the Woodruff Irrigating Company (WIC). The Project area is located just west and within the town of Woodruff, in Rich County, Utah, as shown on the Project Location Map (Figure 1-1). The Project proposes to install 12.4 miles of pressurized pipeline eliminating approximately 20 miles of open canal. North Woodruff Creek and Woodruff Creek will remain open to carry any high flow waters through the canyon and Woodruff.

It is estimated the canals lose at least 33 percent of conveyed water from seepage and evaporation. The WIC board members believe that losses could be as high as 50 percent based on many years of visual observation. A study performed in 1986 by the Rich Soil Conservation District indicated that flood irrigation systems in Rich County are 11 percent efficient. These losses equate to a total system loss of about 45 percent. In other words, almost half of the water is lost due to system inefficiencies and seepage losses.

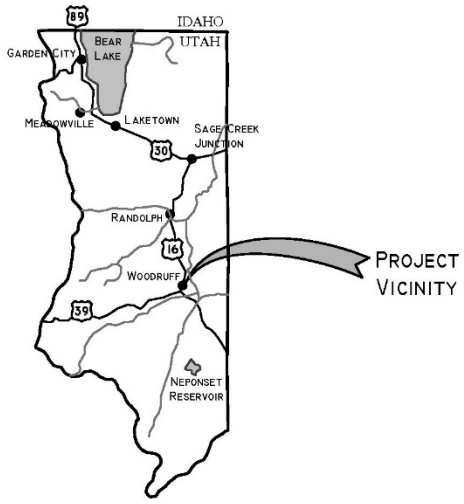
The water losses have a negative impact on WIC shareholders, Woodruff, and the general local economy. These losses reduce the available agricultural water to WIC shareholders during the late summer season, which is not enough for optimal crop production. The water savings realized by the implementation of the Project would provide irrigators with a more reliable source of water, which becomes critical in the late summer season.

1.2 Background

The WIC is a nonprofit irrigation company that was established in the late 1800's to provide water to agricultural users near Woodruff, Utah. Water sources include Woodruff Creek, Birch Creek, and several springs throughout the valley. The WIC owns and operates two reservoirs, Woodruff Creek Reservoir with an existing capacity of 4,350 acre-feet and Birch Creek Reservoir with a capacity of 2,250 acre-feet, and 23 canals/ditches, all of which are unlined earth and encroached with vegetation. The total system has approximately 40 miles of open canals and ditches. Woodruff Creek Reservoir was created in 1970 by the construction of an earth-fill dam on Woodruff Creek and Birch Creek Reservoir was created in 1951 by the construction of an earth-fill dam on Birch Creek.



State of Utah



Rich County Map

FRANSON CIVIL ENGINEERS	DATE: MAY 12, 2016 SCALE: Fig 1 - Location.dwg \\Franson\Projects\UT\Wasatch Back\Woodruff IC General Services\Drawings	WOODRUFF PRESSURIZED IRRIGATION PROJECT	FIGURE 1-1 PROJECT LOCATION MAP

The WIC's service area covers approximately 6,200 acres, which is divided into an upper system of 1,550 acres and a lower system of 4,650 acres. Figure 1-2 shows the existing system. There are 64 shareholders irrigating 3,100 acres of alfalfa/oats, which are mostly sprinkler-irrigated by pumping water, 2,300 acres of native grasses/wild hay (grass-hay) and 800 acres of pasture. Two-thirds of the land is currently flood-irrigated.

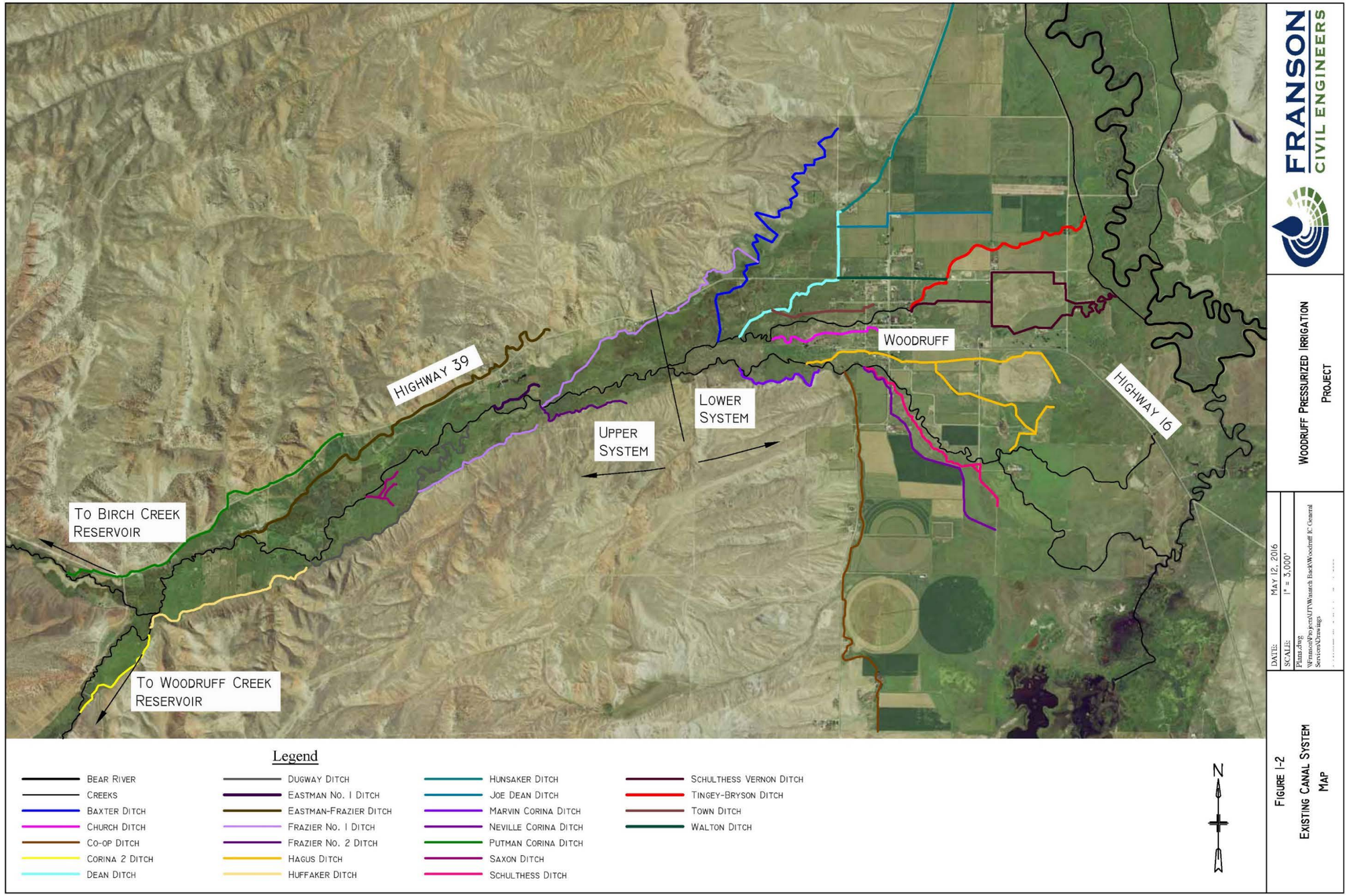
1.3 Purpose of and Need for Proposed Action

This EA evaluates the potential effects of the Proposed Action in order to determine whether it would cause significant impacts to the human or natural environment, as defined by the National Environmental Policy Act (NEPA). If the EA shows no significant impacts associated with implementation of the proposed Project, then a Finding of No Significant Impact (FONSI) will be issued by the Bureau of Reclamation. Otherwise, an Environmental Impact Statement will be necessary prior to implementation of the Proposed Action. The NEPA applies to this Project due to the grant received from Reclamation through the WaterSMART program.

The purposes of the Project are to:

- Conserve approximately 5,560 acre-feet of water annually;
- Improve water management and the reliability of irrigation water delivery;
- Shore up the available water source permitting up to full water share use during the irrigation season;
- Decrease the need to use water from underground aquifers;
- Conserve energy by limiting pumping of irrigation water; and
- Produce a positive impact in the local economy.

The need for the Project is to provide water in the late summer. According to the Utah Division of Water Rights, the region has a water duty of 3 acre-feet per acre. There are 5,943.33 shares in the WIC. According to this allocation, the current water demand for the WIC is approximately 17,830 acre-feet of water annually. On an average year, the irrigation company uses water from spring runoff which typically supplies the water needs during the month of May (7,200 acre-feet). Flows during spring runoff exceed 200 cubic feet per second (cfs), but the WIC can only divert up to 120 cfs into the existing canals. By the beginning of June, the WIC starts to release about 100 cfs from Woodruff Creek Dam and another 20 cfs from Birch Creek Dam, which lasts through the beginning of July (7,200 acre-feet). Therefore, the historical average of total water available is 14,400 acre-feet annually. This results in the irrigation season ending in the beginning of July and an average yearly shortage of about 3,430 acre-feet of water (19 percent).


HIGHWAY 39
LOWER SYSTEM
UPPER SYSTEM
WOODRUFF
HIGHWAY 16
TO BIRCH CREEK RESERVOIR
TO WOODRUFF CREEK RESERVOIR
Legend
BEAR RIVER
CREEKS
BAXTER DITCH
CHURCH DITCH
CO-OP DITCH
CORINA 2 DITCH
DEAN DITCH
DUGWAY DITCH
EASTMAN NO. 1 DITCH
EASTMAN-FRAZIER DITCH
FRAZIER NO. 1 DITCH
FRAZIER NO. 2 DITCH
HAGUS DITCH
HUFFAKER DITCH
HUNSAKER DITCH
JOE DEAN DITCH
MARVIN CORINA DITCH
NEVILLE CORINA DITCH
PUTMAN CORINA DITCH
SAXON DITCH
SCHULTHESS DITCH
SCHULTHESS VERNON DITCH
TINGEY-BRYSON DITCH
TOWN DITCH
WALTON DITCH
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FRANSON CIVIL ENGINEERS
WOODRUFF PRESSURIZED IRRIGATION PROJECT
DATE: MAY 12, 2016
SCALE: 1" = 3,000'
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FIGURE 1-2
EXISTING CANAL SYSTEM MAP

(Figure 1-2)

With most of the supply coming early in the season, there are late season shortages. Woodruff Creek and Birch Creek Reservoirs are generally drawn down to their conservation pools by the first week in July each year causing crops and irrigated pastures to dry-out the last half of the summer. The proposed Project would virtually eliminate losses in the conveyance system and improve irrigation efficiencies by facilitating the conversion of 1,500 acres of flood-irrigation to sprinkler systems. A more efficient system would stretch the limited water supplies and provide water in late summer. This would create a more sustainable and reliable water supply.

1.4 Public Scoping and Involvement

On October 8, 2014, a general stockholder meeting was held, during which, information about Reclamation WaterSMART Grant was presented. A motion was made to meet again in a week to vote on whether to apply for a grant.

On October 15, 2014, a special stockholder meeting was held to discuss the proposed project, pursuing the feasibility of a pipeline, and the WaterSMART Grant to help pay for it. The shareholders voted to proceed. Of the 5,601.95 shares represented, 3,778.42 (67 percent) voted to proceed.

An annual shareholders meeting was held on April 8, 2015. It was noted that WIC had applied for a $1 million grant from the WaterSMART Program. In addition, the Utah Division of Water Resources had approved to loan $3.2 million for the Project. A long discussion was held regarding the proposed pipeline project.

On June 10, 2015, a stockholder special meeting was held. The WIC was awarded the WaterSMART Grant. The project engineer was present to answer questions and address a list of questions the board had previously sent to him.

Another special stockholder meeting was held on July 29, 2015, to vote on whether to accept the $1 million grant. The shareholders voted with 5,189.9 shares in attendance; 3,009.82 voted to proceed, 1,720.08 voted against, and 460 abstained from voting.

A shareholder meeting was held on February 8, 2016, at the Woodruff City Hall. The purpose of the meeting was for shareholders to identify where they would like their irrigation turnout located and to verify the number of shares owned. Each shareholder present had the opportunity to discuss the Project as it related to their property with the project engineer. Each shareholder was able to communicate their requests and opinions of the Project.

A copy of all meeting minutes are found in Appendix A.

A public open house meeting to discuss the proposed project is scheduled to be held on Monday July 11, 2016, from 5:30 pm to 7:00 pm at the Woodruff Town Hall located at 195 S. Main, Woodruff, Utah 84086.

1.5 Permits and Authorizations

Implementation of the Proposed Action may require a number of authorizations or permits from State and Federal agencies. The WIC would be responsible for obtaining all permits and authorizations required for the Project. Potential authorizations or permits may include those listed in Table 1-1.

Table 1-1
Permits and Authorizations

Agency/Department	Purpose
Utah Department of Natural Resources, Division of Water Rights (DWRi)	Stream Alteration Permit under Section 404 of the Clean Water Act (CWA) and Utah statutory criteria of stream alteration described in the Utah Code. This would apply for impacts to North Woodruff Creek, Woodruff Creek or other natural streams or creeks during Project construction.
Utah State Historic Preservation Office	Consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA), 16 USC 470 USC 470.
United States Fish and Wildlife Service	Consultation pursuant to Section 7 of the Endangered Species Act.
United States Army Corps of Engineers (USACE)	A USACE permit, in compliance with Section 404 of the CWA, would be required prior to the discharge of dredged or fill material into "waters of the United States" including wetlands.
Utah Department of Environmental Quality, Division of Water Quality (DWQ)	A Utah Pollutant Discharge Elimination System (UPDES) permit for construction activities would be required to help prevent erosion and ensure sediment controls are utilized to minimize construction impacts.

1.6 Scope of Analysis

The purpose of this EA is to determine whether or not there would be significant impacts to the environment, which includes human environment, as a result of the Proposed Action Alternative. Replacement of the earthen canal system with a pressurized pipeline to develop a more secure and reliable irrigation water supply for WIC shareholders is the Proposed Action Alternative. In order to replace the canal system with a pressurized pipeline, this EA must be completed and a FONSI issued.

Chapter 2 Alternatives

2.1 Introduction

This chapter describes the features of the No Action and Proposed Action Alternatives, and presents a comparative analysis. It includes a description of each alternative considered. This section also presents the alternatives in comparative form, defining the differences between each alternative.

2.2 No Action

Under the No Action Alternative, the WIC system would remain the same. It would continue to lose approximately 40-50 percent of the water in the canals and ditches through seepage and evaporation. This negative impact on WIC shareholders, Woodruff, and local economics would continue.

2.3 Proposed Action

The Proposed Action is the preferred alternative. A 12.4-mile pressurized pipeline system would be constructed to convey water historically carried in canals and ditches. Figure 2-1 shows the proposed pipeline alignment, which begins west of Woodruff along Highway 39, and would be constructed in the WIC's lower service area system. Water would be diverted from Woodruff Creek at the location of the existing Eastman/Frazier Diversion structure to divert all waters for the lower system's shareholders at this location. The system would have four major pipelines, mainly within road rights-of-way, that have a combined capacity of 60 cfs. The pipeline would replace the open canals, which would remain open in most locations. Elevations range from 6,500 feet above sea level at the beginning of the Project, to 6,315 feet above sea level at the lowest elevation.

2.3.1 Canal Enclosure

The canal system currently operates as an open canal. The WIC desires to replace 20 miles of canal with 12.4 miles of pressurized pipeline. The pipe size will vary from 15 to 54-inches-in-diameter. Pressures will range from 0 at the highest elevations to 84 pounds per square inch (psi) at the lowest elevations. At locations where the higher pressures occur, the pipe would be rated to 100 psi. During planning of the Project, the canal would continue to be operated as an open canal (not piped) and would have limited pressure until the entire Project is complete. At that time, the lower system would become fully enclosed. The pipeline alignment would be revegetated after construction.

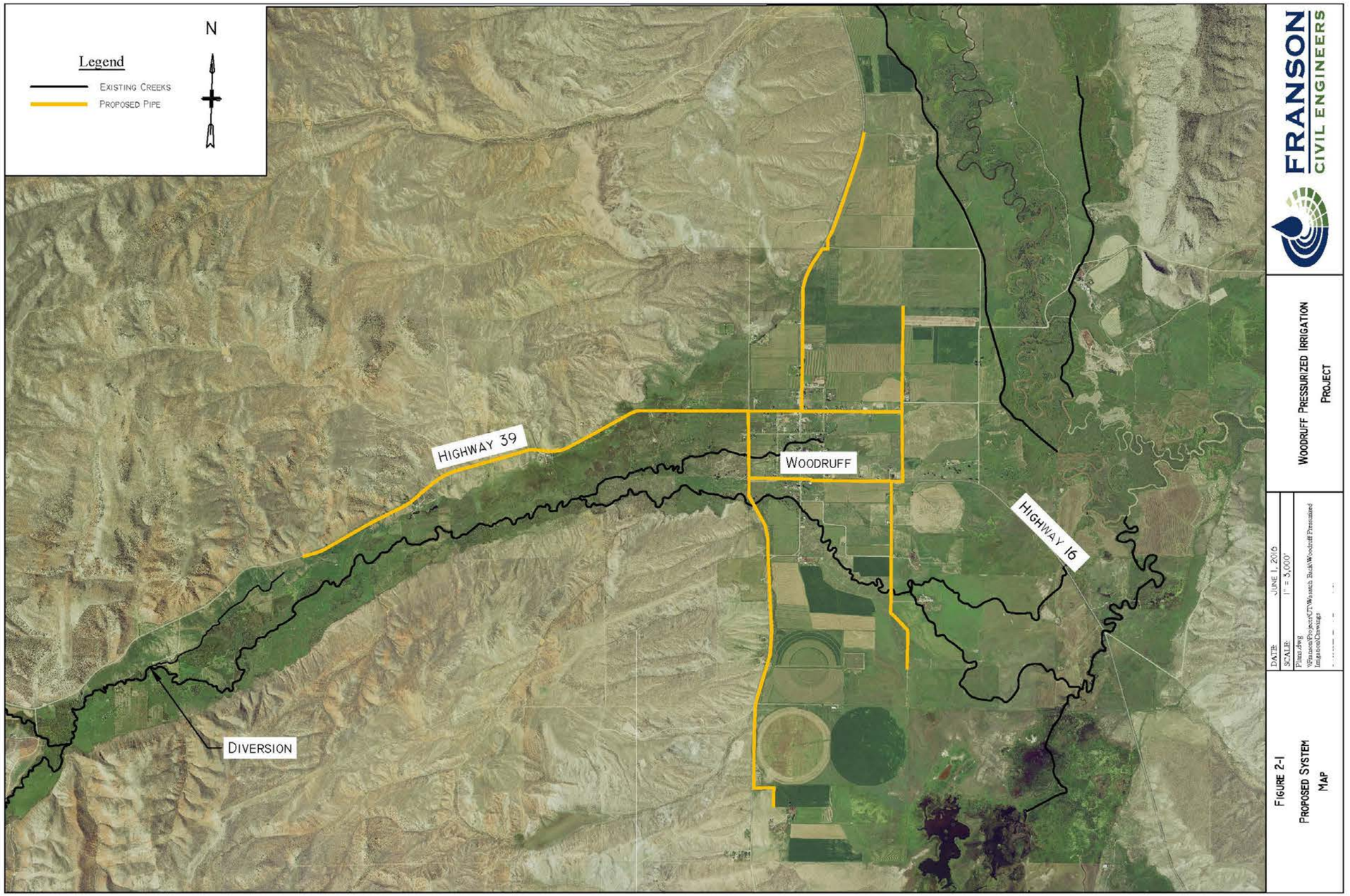
N
Legend
EXISTING CREEKS
PROPOSED PIPE
HIGHWAY 39
WOODRUFF
HIGHWAY 16
DIVERSION
FRANSON
CIVIL ENGINEERS
WOODRUFF PRESSURIZED IRRIGATION
PROJECT
DATE: JUNE 1, 2016
SCALE: 1" = 3,000'
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FIGURE 2-1
PROPOSED SYSTEM
MAP

(Figure 2-1)

2.3.2 Turnouts

Approximately 40 turnouts would be installed along the pipeline to deliver water. During high flow events, water could remain in Woodruff Creek and flow through town and into the Bear River.

2.3.3 Rights-of-Way

The land on which construction would occur is either private property, of which easements are being obtained, public lands with rights-of-way, or within the canal alignment right-of-way.

2.3.4 Road Crossings

Road crossings would occur where highways and surface streets cross the pipeline alignment. Highway 16 would be crossed at Schulthess Lane and Center Street using the boring method to reduce disturbance to the overlaying road. The alignment would be adjacent to Highway 39 on the south side. Although Highway 39 would not be crossed, at the contractor's discretion it may be reduced to one lane of traffic with traffic controls to allow for construction in tight locations.

Where possible, existing culverts would be used to cross the local roadways. In other locations within Woodruff, roads may be temporarily shut down so the roadway could be cut and the pipeline installed. During periods of road closure, detours would be provided. Following construction, disturbed roads would be repaired and all major roads would remain open where crossings occurred.

Driveway crossings provide access over the canals for individual landowners and consist of existing culverts. Most crossings would remain intact throughout construction of the Project.

2.3.5 River Crossings

North Woodruff Creek and Woodruff Creek would be crossed several times. Although they may be temporarily disrupted during construction, they would remain open following pipeline construction to carry potential high flows. The existing Eastman/Frazier Diversion would be reconstructed to divert water into the proposed pipeline. Stream Alteration Permits would be obtained for each river crossing and the existing diversion.

2.3.6 Saved Water

An estimated 5,560 acre-feet of water would be conserved by implementing this Project, which would decrease shortages and improve water management. With good construction practices, the losses due to seepage and evaporation would be near zero. This saved water does not constitute a new source of water previously unavailable to the users of the canal.

The Project would benefit all water users on the system. The conserved water from the Project allows water to be available longer into the irrigation season,

thereby allowing users to receive their full allotment and increase their crop yields.

2.3.7 Construction Schedule and Canal Operation During Construction

The Project consists of constructing 12.4 miles of pipeline. It is anticipated that the work would begin during the fall of 2016 and that all construction could be completed by the end of 2016; however, it would commence in spring of 2017 if uncontrollable factors prohibit completion in 2016.

Access to the farmlands and agricultural areas would be maintained during construction. The WIC's board members would work with the affected property owners to address their concerns, to the extent possible.

It is anticipated that the pipe used would be high-density polyethylene (HDPE) and/or polyvinyl chloride (PVC), which has an industry accepted life expectancy of 50 years. Corrosion resistant fittings would be used to increase life expectancy of all fittings and appurtenances.

2.3.8 Pipeline Construction Procedures

2.3.8.1 Construction Sequence

Construction would likely occur in the following sequence:

- Excavate and grade pipeline alignment
- Install pipeline bedding materials
- Haul pipeline to construction sites
- Place pipeline and connect
- Backfill around pipeline and grade surface
- Cleanup and restore areas disturbed by construction
- Plant rights-of-way and disturbed areas to provide revegetation

2.3.8.2 Excavate and Grade Pipeline Alignment

The pipeline alignment, including canal locations where pipeline will be placed, would be excavated and graded to provide a base for installation of the pipeline. All excess material would be disposed within easements of the pipeline right-of-way. Much of the excavated material could be used for backfill and would be disposed in ways that blend with adjacent lands. Bedding material would be hauled to the Project site and placed in the bottom of the pipeline trench.

2.3.8.3 Pipeline Installation

The pipe manufacturer would transport the materials to the work site by flatbed truck and/or specially outfitted loaders. Construction equipment would place the pipeline in the prepared alignment and connect to the previously laid section by field welding depending on the pipeline type. Backfill would be placed at correct compaction levels around the pipeline from either material available along the alignment or imported from local offsite commercial gravel pits. Backfill would

be mechanically compacted with a compactor. Air-valves, control valves, drains, fittings, and relief valves would be installed at appropriate locations to ensure the proper operation of the pipeline.
Spoil in work areas would be blended with existing contours to maintain local drainage patterns. All construction debris would be removed by the contractor.

2.3.8.4 Road Crossings

It is anticipated that pipeline installation at road crossings would be completed with minimal disturbance to existing structures. Backfill would be compacted all the way to the ground surface at road crossings to prevent the road surface from subsiding under repeated traffic loads during and after construction. Temporary gravel surfaces would be installed and the final asphalt and curb and gutter, where existing, would be restored by the completion of the Project. Road crossings would be restored to a condition better than or equal to existing conditions as confirmed by video footage and photographs.

2.3.8.5 Quality Control Procedures

The contractor would ensure quality control of construction through visual inspection after backfilling and all construction work is completed. The required testing would be performed to ensure that the system operates to design specifications.

2.3.8.6 Construction Staging Areas

Eight separate staging areas (29.5 acres) in the Project area were evaluated as part of the environmental process to be used for equipment staging, construction personnel vehicular parking, and occasional materials stockpiling. However, the pipeline alignment would be a continuous staging area for the construction crews as they construct the pipeline by preparing the alignment, laying the pipeline, backfilling, finishing grading, and restoration. Work would be conducted in stages.

2.3.8.7 Operation and Maintenance

Operation of the WIC's system after the Project would remain essentially unchanged, and maintenance would be reduced significantly. Operation would occur primarily from April 15 to October 15. However, emergency situations or when other conveyance systems are out of service may require the pressurized pipeline to be operated at other times.

2.3.8.8 Standard Operating Procedures

The Project has been designed to avoid or minimize adverse impacts. Standard Operating Procedures (SOPs) would be followed during construction and Operation and Maintenance (O&M) of the Project to avoid or minimize adverse impacts on people and natural resources. Chapter 3 presents the impact analysis for resources after SOPs have been successfully implemented.

2.4 Alternatives Considered and Eliminated from Further Study

The following alternatives were evaluated but eliminated because they did not meet the purpose of or need for the Project.

2.4.1 Membrane Lining

This alternative involves lining the existing canal with an impermeable membrane, such as an ethylene propylene diene monomer or polyvinyl chloride. This liner would be installed on top of a 6-inch thick layer of clean backfill material and covered with several inches of the same backfill material.

This alternative was rejected because of susceptibility to puncturing and the need to repair punctures on a regular basis. Punctures can occur when equipment or large animals such as livestock, enter the canal. It would also still allow debris to enter the canal, it would not shorten the time to make flow changes, and most of the other aspects of an open canal would remain the same. Public safety and evaporation loss would not be addressed with this alternative.

This alternative does not meet the purpose and need of the Project because it would keep the water in an open environment; thus allowing evaporation and contamination from equipment and livestock.

2.4.2 Gravity Pipeline

This alternative would pipe the existing canal alignment with a 24 to 60-inch diameter pipe. A larger size pipe is required to convey the free flowing water rather than a pressurized pipeline. Twenty miles of pipeline would be installed to replace the existing canal. Pressure reducing valves would be required to maintain velocities of 5 miles per hour.

While this alternative would conserve water, it does not meet the purpose and need of the Project to conserve energy as it actually wastes it and is cost prohibitive.

2.5 Comparison of Alternatives

The suitability of the No Action and Proposed Action Alternatives were compared based on six objectives identified for the Project which are listed in Section 1.3.

As shown in Table 2-1, the No Action Alternative did not meet the Project objectives.

Table 2-1
Comparison of Alternatives

Project Objective	Does the No Action Meet the Objective?	Does the Proposed Action Meet the Objective?
Conserve water	No	Yes
Improve water management	No	Yes
Shore up available water source	No	Yes
Decrease underground aquifer use	No	Yes
Conserve energy	No	Yes
Positive impact on the local economy	No	Yes

2.6 Minimization Measures Incorporated into the Proposed Action

The minimization measures, along with other measures listed under each resource in Chapter 3 and Chapter 4 have been incorporated into the Proposed Action to lessen the potential adverse effects.

- All land surface disturbances would be confined to areas previously disturbed, ditch rights-of-way, existing roads, agricultural farmland, and staging areas adjacent to the Project area.
- Stockpiling of materials would be limited to those areas approved and cleared in advance.
- The WIC would be responsible during construction for safety measures, noise and dust control, and air and water pollution.

Chapter 3 Affected Environment and Environmental Consequences

3.1 Introduction

This chapter describes the environment that could be affected by the No Action and Proposed Action Alternatives. These impacts are discussed under the following resource issues: geology and soils resources; visual resources; cultural resources; hydrology; paleontological resources; wilderness areas and wild and scenic rivers; water quality; health, safety, air quality, and noise; prime and unique farmlands; wetlands, riparian, noxious weeds and existing vegetation; wildlife resources; aquatic resources; threatened, endangered, and sensitive species; recreation; socioeconomics; access and transportation; water rights; flood control; Indian Trust Assets (ITAs); environmental justice; and cumulative effects. The present condition or characteristics of each resource are discussed first, followed by a discussion of the predicted impacts caused by the Proposed Action. The environmental effects are summarized in Section 3-7.

3.2 Resources Considered and Eliminated from Further Analysis

The resources listed in Table 3-1 were considered but eliminated from further analysis because they did not occur in the Project area or because their effect is so minor (negligible) that it was discounted.

Table 3-1
Resources Eliminated from Further Analysis

Resources	Rationale for Elimination from Further Analysis
Paleontological Resources	Consultation with the State Paleontologist indicates there is a very low probability of the presence of paleontological resources in the Project area.
Wilderness Areas and Wild and Scenic Rivers	There are no designated Wilderness Areas or Wild and Scenic Rivers within the Project area; therefore, Wilderness Areas and Wild and Scenic Rivers would not be affected by implementing the No Action or Proposed Action Alternatives.
Prime and Unique Farmland	There is Prime Farmland within the Project area but no Unique Farmland. However, there would be no conversion of farmland to non-agricultural use, as defined by the

Resources	Rationale for Elimination from Further Analysis
	Farmland Protection Policy Act (USC 4201-4209), by implementing the No Action or Proposed Action Alternatives.
Recreation	Woodruff Creek and North Woodruff Creek are not substantial fisheries and are too small to support any measurable recreation. The WIC's irrigation ditches do not provide sources of recreation.

3.3 Affected Environment and Environmental Consequences

This chapter describes the affected environment (baseline conditions) and environmental consequences (impacts as a result of the No Action and Proposed Action Alternatives) on the quality of the human environment that could be impacted by construction and operation of the Proposed Action, as described in Chapter 2. The human environment is defined in this study as all of the environmental resources, including social and economic conditions occurring in the impact area of influence.

3.3.1 Geology and Soils Resources

The Project area is dominated by well drained soils. The majority of the soil type is Cowco loam (49.5 percent) with Bockston loam being the next majority (13.1 percent). The remaining soils vary and are minor. They may have properties similar to the dominant soils and do not affect use and management.

3.3.1.1 No Action

Under the No Action, the Project would not be built. This would have no effect on geology and soils.

3.3.1.2 Proposed Action

The Proposed Action Alternative would have temporary surface soil impacts during construction. Construction erosion and sediment controls would serve to minimize these impacts. As a requirement of the UPDES permit for construction activities, a Storm Water Pollution Prevention Plan (SWPPP) would be developed and adhered to by the construction contractor.

3.3.2 Visual Resources

The natural and constructed features contribute to the visual resources within the Project area, including: mountain views, agricultural fields, and vegetation along the ditch corridor. Viewers, including local residents, workers, and recreationists, have a perception of the existing physical characteristics. This section assesses the extent to which the Project would change the perceived visual character and quality of the environment where the Project is located.

3.3.2.1 No Action

Under the No Action Alternative, there would be no changes to the existing visual resources.

3.3.2.2 Proposed Action

Under the Proposed Action Alternative, it is anticipated that there would be permanent loss of riparian vegetation along the abandoned canal and ditch reaches that do not capture sufficient storm water, agricultural runoff, or other supplemental water sources to allow such vegetation to persist. The abandoned ditches and canals would remain open for stormwater collection; however, they would be allowed to fill in naturally over time. North Woodruff Creek and Woodruff Creek would remain available for high flood flows.

Additionally, there would be no permanent construction impacts from constructing a pipeline to the overall visual character for the close-range to mid-range or even long-range viewers. Any visual impairment due to construction would be temporary. All ground disturbance related to construction of the pipeline would be graded and revegetated.

3.3.3 Cultural Resources

Cultural resources are defined as physical or other expressions of human activity or occupation that are over 50 years in age. Such resources include culturally significant landscapes, prehistoric and historic archaeological sites as well as isolated artifacts or features, traditional cultural properties, Native American and other sacred places, and artifacts and documents of cultural and historic significance.

Section 106 of the National Historic Preservation Act of 1966 (NHPA), mandates that Reclamation take into account the potential effects of a proposed Federal undertaking on historic properties. Historic properties are defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for, inclusion in the National Register of Historic Places (NRHP). Potential effects of the described alternatives on historic properties are the primary focus of this analysis.

The affected environment for cultural resources is identified as the area of potential effects (APE), in compliance with the regulations to Section 106 of the NHPA (36 CFR 800.16). The APE is defined as the geographic area within which Federal actions may directly or indirectly cause alterations in the character or use of historic properties. The APE for this Proposed Action includes the area that could be physically affected by any of the proposed project alternatives (the maximum limit of disturbance).

A Class I literature review and a Class III cultural resource inventory were completed for the APE, defined in the action alternative and analyzed for the Proposed Action, by Bighorn Archaeological Consultants (Bighorn). In accordance with 36 CFR 800.4, any sites identified within the APE were

evaluated for significance in terms of NRHP eligibility. The significance criteria applied to evaluate cultural resources are defined in 36 CFR 60.4 as follows:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, association, and

1. that are associated with events that have made a significant contribution to the broad patterns of our history; or
2. that are associated with the lives of persons significant in our past; or
3. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
4. that have yielded, or may be likely to yield, information important in prehistory or history.

The results of Bighorn's survey include two historic irrigation ditches. Examination of the proposed Project area resulted in the extension and update of two previously recorded cultural sites. These sites are either recommended or accepted by Utah State Historic Preservation Office (SHPO) as non-significant and not eligible to the NRHP. There are no cultural properties which have been determined to be eligible to the NRHP within the Project area.

Site 42RI149 (unnamed ditch) has previously been recommended as non-significant and not eligible to the NRHP. It is of minor importance and is only one of several short ditches from a tributary creek used to water a small area of the floodplain. Bighorn extended the site to the south for an additional 150 meters (0.1 mile) and concurs that the site is not eligible to the NRHP under any criterion.

Site 42RI180 (Co-op ditch) has previously been recommended as non-significant and not eligible to the NRHP with SHPO concurrence. It does not have a unique design or construction for a rural irrigation ditch. It had a limited role in the agricultural and water development history of the region.

3.3.3.1 No Action

Under the No Action Alternative, a continuation of existing management and land use practices would occur. It would include ongoing maintenance and repair of existing facilities. There would be no changes to the current conditions.

3.3.3.2 Proposed Action

Under the Proposed Action Alternative, construction activities have the potential to discover previous, unknown, cultural resources and Native American artifacts. In the event of a discovery, construction activity in the vicinity would be

suspended. A treatment plan would be developed, and coordination with SHPO would occur immediately.

3.3.4 Hydrology

Both Woodruff Creek Reservoir and Birch Creek Reservoir are impoundments used by WIC, which flow into Woodruff Creek and then North Woodruff Creek. Woodruff Creek is the main source of water for WIC and has been used for crop cultivation since the 1880's. WIC uses water from spring runoff which typically supplies the water needs during the month of May. Flows during spring runoff exceed 200 cfs, but WIC can only divert up to 120 cfs into the existing canals. By the beginning of June, WIC starts to release about 100 cfs from Woodruff Creek Dam and another 20 cfs from Birch Creek Dam, which lasts through the beginning of July. The majority of this water is diverted into the ditches. This results in the irrigation season ending in the beginning of July with an average yearly shortage of about 3,430 acre-feet of water based on the region's water duty of 3 acre-feet per acre.

WIC uses diversion structures to divert water into the various canals and ditches for the shareholders surrounding and in Woodruff. Several of the upper ditches can only be supplied by either Birch Creek Reservoir or Woodruff Creek Reservoir. The lower ditches can be supplied by either reservoir.

Woodruff Creek Reservoir has a conservation pool of 450 acre-feet and Birch Creek Reservoir has a conservation pool of 400 acre-feet. The reservoirs are generally drawn down to their respective conservation pools by the first week in July each year causing crops and irrigated pastures to dry-out the last half of the summer. Irrigation water releases from these reservoirs cease at the conclusion of the irrigation season each year in order to begin storing water for the following irrigation season. Several springs and natural drainages exist that continue to feed into the creek system downstream of the dams. Farmers in the area have always sought ways to improve the water supply.

Beginning west of Woodruff, Woodruff Creek flows east and is a tributary of the Bear River, which terminates at the Great Salt Lake. The Bear River is a 303(d)-listed river, indicating that it is an impaired body of water for water quality standards, particularly total phosphorus and dissolved oxygen. Prior to entering the Great Salt Lake, diversions are made to the Bear River Migratory Bird Refuge operated by the U.S. Fish and Wildlife Service (USFWS). Historically, the refuge has had some difficulty in diverting the necessary water supply to maintain a healthy ecosystem, sometimes resulting in outbreaks and disease.

3.3.4.1 No Action

Under the No Action Alternative, there would be no direct or indirect effect on the hydrology of Woodruff Creek stream flows, as there would be no change in the existing management of the water resource.

3.3.4.2 Proposed Action

Under the Proposed Action Alternative, the same flows that have historically been diverted by WIC would continue to be diverted into the proposed pipeline, which has a capacity of 65 cfs. However, all water to be diverted for shareholders would occur at the Eastman/Frazier Diversion rather than at various points along Woodruff Creek and North Woodruff Creek. This would cause a reduction in flows downstream of the Eastman/Frazier Diversion in both Woodruff Creek and North Woodruff Creek during the irrigation season. High flows during spring runoff and precipitation events that exceed the pipeline capacity would remain in Woodruff Creek and continue to flow downstream. This may occur into the summer depending upon seasonal conditions. The ditches that supply shareholders who choose to sprinkler irrigate, would likely dry up. The ditches that supply shareholders who choose to flood irrigate would continue to transport water, as the pipeline turnouts at these locations would discharge into the existing ditches.

The overall water supply available to WIC would increase due to eliminating seepage and evaporation losses in the canals and ditches. The water savings would be captured in the reservoirs for use later in the irrigation season by the shareholders, with an estimated extension of the irrigation season by 15 to 20 days. This would also allow the captured water savings to flow downstream later into the year, extending the flows in Woodruff Creek by an estimated 15 to 20 days annually.

3.3.5 Water Quality

Each stream, reservoir, and canal in Utah is classified according to its beneficial uses. The required standards for water quality parameters are determined by the classifications used. According to the Standards of Quality for Waters of the State, Environmental Quality (R317-2-13), Utah Administrative Code (UAC), Woodruff Creek is classified as:

- Class 2B -- Protected for infrequent primary contact recreation. Also, protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.

- Class 3A -- Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.

Any water not diverted from Woodruff Creek continues to flow downstream into the Bear River. Flood irrigation creates return-flows that are high in nitrogen and phosphorus. The Bear River is a 303(d)-listed river, indicating that it is an impaired body of water for water quality standards, particularly total phosphorus and dissolved oxygen.

3.3.5.1 No Action

Under the No Action Alternative, there would be no changes to the current conditions or additional effects to water quality. Any herbicides, nutrients, and sediments would continue to remain in the water in the same ratios as current conditions. Since no construction would occur, there would be no temporary construction-related water quality impacts.

3.3.5.2 Proposed Action

Under the Proposed Action Alternative, the pipeline would cross North Woodruff Creek two times and Woodruff Creek three times. Additionally, the existing Eastman/Frazier Diversion structure on Woodruff Creek would be reconstructed to divert water into the proposed pipeline. Stream Alteration Permits would be obtained for each crossing and the diversion. Minor water quality impacts may occur due to increased sedimentation during construction if flows are present. However, these impacts would be temporary and minimized through the development of a SWPPP and completing creek crossings during periods of low or no flow. Conditions set forth in the permits to help minimize sediment load and water quality impacts would be adhered to. Any instream flows during construction would be allowed to bypass the construction location and continue downstream as would occur naturally.

The Proposed Action would improve water quality as water would be conveyed in a closed pipe, decreasing sedimentation from bank erosion, and nutrient transfer from agricultural and urban runoff. There are no foreseen long-term negative impacts to water quality in Woodruff Creek or the irrigation system.

3.3.6 Health, Safety, Air Quality, and Noise

This section identifies potential public safety hazards and health risks from the construction and operation of the Proposed Action and No Action. The project is located in a rural area, with Woodruff being the most densely populated area. The areas exposed to noise during construction lie adjacent to Highway 39, Highway 16, and the local county roads.

3.3.6.1 No Action

Under the No Action Alternative there would be no adverse effects to health, safety, air quality, and noise.

3.3.6.2 Proposed Action

The Proposed Action Alternative may have minor short-term effects during construction. Noise levels within the Project area would temporarily increase during pipeline construction due to heavy equipment and truck traffic. If county and state roads are used for access during construction, risk of traffic accidents may increase slightly. Also, fugitive dust has the potential to increase during pipeline construction; however, dust suppressant measures will be used to help minimize the increased short-term impacts.

The pipeline would operate as a low-pressure pipeline with pressures ranging from 0 psi at the highest elevations to 84 psi at the lowest elevations. The appropriate pipe type would be selected depending on the calculated pressures. Every pipe has a pressure class rating with a built in factor of safety. Many pipelines are pressurized including culinary water lines and do not pose a threat to public safety. There would be no long-term effects on health, safety, air quality, and noise.

3.3.7 Wetlands, Riparian, Noxious Weeds, and Existing Vegetation

A Wetlands and Waters of the U.S. Delineation was conducted for the proposed Project on December 9-10, 2015. The delineation was completed in accordance with the U.S. Army Corps of Engineers' 1987 Wetland Delineation Manual (USACE 1987) and the Arid West Supplement (USACE 2008). Focus was placed on areas previously identified as potential National Wetland Inventory (NWI) wetland areas.

The proposed pipeline crosses three soil types being conducive to supporting wetlands. The three soil-types analyzed and targeted for evaluation were Hival silty clay loam (HC), Saleratus loam (SA), and Saleratus loam, saline-alkali (SB). These soils all had slopes of 2 percent or less, poorly drained soils, and a high water table between 18-30 inches from the surface. Approximately 100 meters (328 feet) upstream and 100 meters downstream of the Project area were surveyed for wetlands. Additional areas for sampling were selected based on vegetation characteristics that could potentially be wetland habitat.

The survey resulted in one potentially jurisdictional wetland area being delineated along Highway 39 toward the west end of the Project area. It was located in a field on the south side between Highway 39 and the private fence line. The area contained Obligate (OBL) species such as cattail (Typha latifolia) and bulrush (Schoenoplectus acutus) along with Facultative Wetland (FACW) species such as wiregrass (Juncus balticus).

Five potential areas were also surveyed; however, the areas did not demonstrate any wetland vegetation characteristics or meet the hydric soils or hydrology necessary to support wetlands. These areas yielded a non-wetland determination.

Two additional potential NWI wetland areas were inaccessible due to private access constraints. Both areas appear to demonstrate the same habitat characteristics and plant make-up (i.e. no OBL species) as the other five NWI wetland areas sampled, which were all determined to be non-wetland. With the evidence of these five other areas with similar habitat characteristics being determined as non-wetland, it is generally assumed these two additional inaccessible areas would yield similar results and be classified as non-wetland. However, since soils and hydrology could not be tested at the time of survey for these two areas, the supporting evidence for a non-wetland determination is inconclusive at this time. It is important to note that all proposed construction

activities would occur within previously disturbed areas, within the development of existing facilities (i.e. canals, roadways, ditches, etc.).

Habitat surrounding the proposed pipeline is primarily agricultural along the valley bottoms with willows (*Salix sp.*) and cottonwoods (*Populus sp.*) lining portions of Woodruff Creek and various canals. The foothills and mountains consist of pinyon (*Pinus edulis*) and juniper (*Juniperus sp.*) stands with sagebrush (*Artemisia tridentate*) as the dominant shrub. The pipeline corridor is relatively clear of larger vegetation and understory, with the exception of grasses and weeds. The Project area ranges from 6,500 feet to about 6,315 feet elevation. The following photos are representative of the existing vegetation.

Noxious weeds are plants designated by a Federal, State, or County government as injurious to public health, agriculture, recreation, wildlife or property. The State of Utah has declared noxious weeds under Section 4-17-3, Utah Noxious Weed Act. While Rich County does not have any additional noxious weeds, as of Utah Department of Agriculture and Food's list of February 2015, it has identified some as high priority as highlighted below within the State's list.

Bermudagrass *(cynodon dactylon)*
Blackhenbane *(Hyoscyamus niger)*
Canada thistle *(cirsium arvense)*
Dalmatian toad flax *(Linana dalmatica)*
Diffuse knapweed *(centaurea diffusa)*
Dyers woad *(isatis tinctoria L.)*
Field bindweed *(convolvulus spp.)*
Hoary cress *(cardaria drabe)*
Houndstongue *(cynoglossum officianale L.)*
Johnsongrass *(sorghum halephense)*
Leafy spurge *(euphorbia esula)*
Medusahead *(taeniatherum caput-medusae)*
Musk thistle *(carduus mutans)*
Oxeye daisy *(chrysanthemium leucanthemum L.)*
Perennial pepperweed *(lepidium latifolium)*
Perennial sorghum *(sorghum halepense L. & sorghum almum)*
Poison Hemlock *(Conium maculatum)*
Purple loosestrife *(lythrum salicania L.)*
Quackgrass *(agropyron repens)*
Russian knapweed *(centaurea repens)*
Salt Cedar *(tamarix ramosissima Ledeb.)*
Scotch thistle *(onopordum acanthium)*
Spotted knapweed *(centaurea maculosa)*
Squarrose knapweed *(centaurea squarrosa)*
St. John's Wort *(hypericum perforatum L.)*
Sulfur cinquefoil *(potentilla recta L.)*
Yellow starthistle *(centaurea solstitialis)*
Yellow toadflax *(linaria vulgaris Mill.)*

3.3.7.1 No Action

Under the No Action Alternative, there would be no changes to the current conditions or additional effects to wetlands. Since no construction would occur, there would be no impacts to potential wetlands. A continuation of existing management and land use practices would occur including ongoing maintenance and repair of existing facilities. There would be no changes to the current conditions.

3.3.7.2 Proposed Action

Following all observations and analysis, it is concluded that under the Proposed Action Alternative, minor impacts to the delineated wetland area is anticipated to occur during pipeline construction. However, they would be expected to be temporary and minimal. To help minimize impacts to the wetland area the top 6-inches of topsoil and vegetation would be removed and stockpiled separately to be replaced after pipeline backfill has been compacted. All trench excavation spoils will be stockpiled outside of the delineated wetland boundary. A stream alteration permit will be reviewed by the State of Utah DWRi prior to construction in this area.

It is anticipated that there would be permanent loss of riparian vegetation along the abandoned canal and ditch reaches that do not capture sufficient storm water, agricultural runoff, or other supplemental water sources to allow such vegetation to persist. All construction activities would occur in areas that have been previously disturbed by the development of existing facilities, farming practices, and roadways.

During construction, the disturbance to the soils along the pipeline alignment would be expected to be temporary and minimal. The spread of noxious weeds would be decreased because the water placed in the pipeline would be screened and most, if not all, noxious weed seeds will not pass through the screen. The right-of-way along Highway 39 is currently and would continue to be maintained by the Utah Department of Transportation. Many of the other lands are private property and agricultural lands. These are typically disked, plowed, and planted and would continue to be so, not allowing noxious weeds to grow. City streets would be maintained by Woodruff and residents along their property.

3.3.8 Wildlife Resources

3.3.8.1 Fish

North Woodruff Creek and Woodruff Creek are not a major fishery in the area nor does the UDWR stock fish into them. Typical fish found may include cutthroat, rainbow trout, and white fish. Low flows and dry conditions in the summer limit habitat for fish.

3.3.8.2 Small Mammals

Small mammals are inherent in rural, agricultural areas. These small mammals use the upland habitat, as well as the agricultural properties and the lands in between to live and locate prey.

3.3.8.3 Raptors

Raptors, such as the bald eagle (*Haliaeetus leucocephalus*) may winter in the area, but do not breed locally. The golden eagle (*Aquila chrysaetos*) and short-eared owl (*Asio flammeus*) may be found year-round. A large portion of the raptors diet include the many small mammals that live in the open grasslands and agricultural lands within the Project area.

3.3.8.4 Migratory and Other Birds

The habitat in the Project area supports a high quantity and diverse type of migratory and other birds. The following birds were identified on the USFWS IPaC Trust Resource List for breeding: american bittern (*Botaurus lentiginosus*), brewer's sparrow (*Spizella breweri*), burrowing owl (*Athene cunicularia*), calliope hummingbird (*Stellula calliope*), ferruginous hawk (*Buteo regalis*), flammulated owl (*Otus flammeolus*), fox sparrow (*Passerella liaca*), long-billed curlew (*Numenius americanus*), mountain plover (*Charadrius montanus*), olive sided flycatcher (*Contopus cooperi*), peregrine falcon (*falco peregrinus*), rufous hummingbird (*Selasphorus rufus*), sage thrasher (*Oreoscoptes montanus*), swainson's hawk (*Buteo swainsoni*), virginia's warbler (*Vermivora virginiae*), western grebe (*Aechmophorus occidentalis*), williamson's sapsucker (*Sphyrapicus thyroideus*), and the willow flycatcher (*Empidonax traillii*).

3.3.8.5 Big Game

The mountains west of Woodruff are a part of the Uinta-Wasatch-Cache National Forest, which provide winter habitat for mule deer (*Odocoileus hemionus*) and rocky mountain elk (*Cervus canadensis nelsoni*). South and west-facing slopes at lower elevations are important wintering areas. During the winter, elk are usually found in lower to mid-elevation habitats with mountain shrub and sagebrush vegetation. During summer, most mule deer habitat is located at higher elevations. Although deer may feed at night in adjacent agricultural fields, the town limits of Woodruff and deer-proof fenced agricultural lands nearby limit their use of the area as winter habitat.

3.3.8.6 No Action

The No Action Alternative represents a continuation of existing management and land use practices. There would be no new impacts to wildlife within the Project area.

3.3.8.7 Proposed Action

Construction activities would occur in or adjacent to areas that were previously disturbed by agricultural development, homes, and roadways. Construction would be in the late fall through early spring. Wildlife disturbance would be localized, temporary, and minimal due to the lineal and fast moving nature of the construction activities. Revegetation at that elevation and location in early summer would likely occur fairly rapidly, which would minimize the disruption of habitat use by wildlife.

Seasonal migrations of wildlife may be affected by Project construction. This would be temporary and wildlife would be able to use adjacent lands during this time. Temporary effects would be minimized by restricting construction activities to avoid sensitive breeding or nesting seasons.

There would be no displacement or harassment of migratory birds and raptors because the construction season would occur during the late fall, winter, and early spring, which is after and prior to times when birds are actively breeding in the

area. The Project would ensure compliance with the Migratory Bird Treaty Act. In the event that construction activities occurred in the late spring/early summer or any time active breeding, nesting, or pre-fledging behavioral activities were happening, WIC would adhere to the USFWS Utah Raptor Guidelines, placing appropriate buffers on nests until fledging activities concluded. If nests of migratory birds were located during the construction process, a Reclamation biologist would be consulted and an appropriate buffer would be put in place. Any birds still in the Project area during construction would be able to use similar roost sites or other habitats in the immediate Project vicinity, if cottonwood trees and/or willows were removed during construction. The removal of large trees is not anticipated to be necessary for this Project. The Project is being designed to avoid small trees as well.

Effects to fish, small mammals, reptiles, and big game would be minimal. If the species were present during construction, minor disturbances to their habitat and some direct mortality may occur. Temporary changes in habitat for sensitive species would be negligible.

Overall, the direct and indirect effects to wildlife resources would be minimal. In addition, the long and short-term impacts to the habitat, water sources, and behavior would be minor.

3.3.9 Aquatic Resources

The Utah Division of Wildlife Resources (UDWR) does not stock fish in Woodruff Creek or Woodruff Creek Reservoir. The water in Woodruff Creek is controlled by releases from Birch Creek Reservoir and Woodruff Creek Reservoir, which is determined by irrigation demands. Birch Creek Reservoir is home to native cutthroat trout and contains populations of tiger and rainbow trout that are stocked by the UDWR. Cutthroat trout are also found in Woodruff Creek Reservoir.

Irrigation water releases from these reservoirs cease at the conclusion of the irrigation season each year in order to begin storing water for the following irrigation season. Several springs and natural drainages exist that continue to feed into the creek system downstream of the dams. The fish that inhabit Woodruff Creek are likely accustomed to this seasonally changing flow pattern and may congregate within the deeper pools that remain within the creek channels. Multiple diversion structures currently exist within Woodruff Creek which cause fragmentation of fish habitat and prevent fish passage.

3.3.9.1 No Action

Under the No Action Alternative, the Project would not be built and there would be no changes to aquatic resources.

3.3.9.2 Proposed Action

Irrigation water releases from Birch Creek and Woodruff Creek Reservoirs would continue to cease at the conclusion of the irrigation season each year. The springs

and natural drainages that exist in the area would continue to feed into the creek system downstream of the dams. Seasonally changing flow patterns would continue to exist which the fish have likely become accustomed to. The Proposed Action would allow the water savings that had been captured in the reservoirs to flow downstream later into the year, extending the flow in Woodruff Creek by an estimated 15 to 20 days annually.

Woodruff Creek and North Woodruff Creek, downstream of the Eastman/Frazier Diversion, would experience reduced flows during the irrigation season as all water provided to the shareholders would be diverted at the Eastman/Frazier Diversion rather than at various points along Woodruff Creek and North Woodruff Creek. High flows during spring runoff and precipitation events that exceed the 65 cfs capacity of the pipeline would remain in Woodruff Creek and continue to flow downstream. This may occur into the summer depending upon seasonal conditions. Deeper pools within Woodruff Creek would remain. Since the fish have likely become accustomed to the seasonal fluctuating flow patterns and habitat fragmentation, it is anticipated that there would be no effect upon aquatic resources.

3.3.10 Threatened, Endangered, and Sensitive Species

Federal agencies are required under the Endangered Species Act (ESA) of 1973, 16 USC 1531, to ensure that any action federally authorized, funded, or carried out, does not jeopardize the continued existence of threatened or endangered species, or modify their critical habitat.

An information request was made from the USFWS through the IPaC System on November 25, 2015, regarding any threatened or endangered species within the Project area. One threatened species, the Canada lynx (*Lynx canadensis*), was identified within the Project area. The Project area is identified as having "final designated" critical habitat for the species. There are no other critical habitats within the Project area. Table 3-2 lists the species along with habitat requirements and potential impact determination.

Table 3-2
ESA Listed Species with Potential Habitat in the Project Area

Species (common and scientific name)	Status	Habitat Description	Suitable Habitat in Project Area	Project Impact Determination
Mammals				
Canada lynx *(Lynx canadensis)*	Threatened	Isolated spruce, fir, and lodgepole pine forests, typically in areas with high prey populations, especially snowshoe hare	Final designation	Habitat requirements for species not present along pipeline alignment; **No effect**

U.S. Fish & Wildlife Service (2015, November 25)

3.3.10.1 State Sensitive Species

The State Sensitive Species List contains species that are considered "Wildlife Species of Concern," which means there are threats to their populations. These species are identified for conservation actions that would preclude the need for their listing under the ESA. There is no statutory protection from the Federal or State government.

The following species were identified from an information request from the Department of Natural Resources (DNR), Utah Natural Heritage Program. The results are based on data existing in the UDWR central database on December 7, 2015. There are recent records of occurrence within a ½-mile radius of the Project area for the bald eagle, California floater, ferruginous hawk, pygmy rabbit, western pearlshell and white-tailed prairie dog, and historical records of occurrence for the black-footed ferret. In addition, within a 2-mile radius, there are recent records of occurrence for greater sage-grouse.

3.3.10.2 No Action

Under the No Action Alternative, there would be no direct or indirect threats to threatened, endangered, and sensitive species or critical habitat because there would be no construction-related activities. There would be no changes to the current conditions.

3.3.10.3 Proposed Action

Under the Proposed Action Alternative, there would be no effect to Canada lynx during or after construction based on the fact that neither the species nor the habitat requirements are present along the pipeline alignment.

In addition, effects to sensitive species would include displacement or disruption of normal behaviors. There may be minor short-term impacts to the habitats of the aforementioned sensitive species by removing vegetation or by removing a seasonal free water source. However, these effects would be minimal and short-lived until the species could find an alternative water source. Overall, sensitive species would not be affected appreciably, and it would not be long term or cause a trend toward federal listing under the ESA.

3.3.11 Socioeconomics

The population of Woodruff was 180 in the 2010 census, equaling a 12.5 percent increase from the 2000 census. The estimated median adjusted gross household income for 2013 was $47,524, which is 15 percent higher than the State's median adjusted gross household income of $40,489. Woodruff exhibits limited overall racial diversity, with 99.44 percent of residents classified as white in 2010 and 0.56 percent as native Hawaiian.

3.3.11.1 No Action

Under the No Action Alternative, there would be no changes to the socioeconomics of the community.

3.3.11.2 Proposed Action

Under the current irrigation scenario, surface water is usually exhausted in early July*. Under the Proposed Action Alternative, there would be an increase in crop production to WIC shareholders as a result of increased water supplies providing an economic benefit due to the implementation of the Proposed Action. It would help stabilize the economics and sustainability of the farming and ranching community by providing improved irrigation efficiency, improved crop production of both hay and livestock, and reduce stresses on the culinary water supply for Woodruff. There would also be a temporary increase in jobs created, including construction workers and local suppliers of construction materials. Costs borne by WIC for operation and maintenance would be reduced.

Shareholders would have the option to convert from flood irrigation to sprinkler irrigation as the pipeline would be pressurized. Shareholders who desire to continue flood irrigating would be able to do so from the pipeline. As part of the project, flood irrigation turnouts would include an orifice plate to restrict the flow and assist with energy dissipation. The water would then flow into the existing ditch. Flood irrigators would have the option to convert to sprinkler irrigation in the future by removing the orifice plate and connecting to the pipeline.

Sprinkler irrigation would create positive economic benefits by allowing more water to be available for all shareholders through water conservation. Water would also be available later into the growing season, possibly allowing for another crop cutting thereby increasing the shareholder's income by as much as 25 to 33 percent. There would be no changes to the land uses, thereby creating no effect to the socioeconomics of the community. The Project would not adversely affect low income or minority populations.

*http://www.uintacountyherald.com/v2_news_articles.php?heading=0&page=72&story_id=7664

3.3.12 Access and Transportation

Remotely located, the Project can be accessed from Highway 39 from the West or Highway 16 from the East. The impact area of influence for transportation includes roads that would be used during construction, operation and maintenance of the No Action and the Action Alternatives. The impact area of influence for utilities includes any utilities that would be moved, replaced, or experience service interruptions under the No Action or Proposed Action Alternatives.

During construction, the majority of the vehicle trips would be for transporting construction materials. The contractor would be transporting heavy construction equipment at the beginning and end of the Project.

3.3.12.1 No Action
The No Action Alternative would have no impact on access and transportation.

3.3.12.2 Proposed Action
The Proposed Action Alternative would have minor short-term effects during construction. Where the pipeline crosses existing roadways the roads would be temporarily shut down so that they can be cut and the pipeline installed. During each roadway closure, detours would be provided which could cause short-term delays. The road would be repaired following pipeline construction. There would be no long-term effects on access and transportation.

3.3.13 Water Rights
The WIC owns multiple water rights, many of which are supplemental to one another. Combined, these water rights essentially allow WIC to divert over 120 cfs of direct flows for irrigation use and stored 6,600 acre-feet of spring high flow water. The water from these rights are combined to irrigate approximately 6,000 acres. Water is stored in two reservoirs owned and operated by WIC; Woodruff Creek Reservoir and Birch Creek Reservoir. Water is released into Woodruff Creek and Birch Creek, which combines into Woodruff Creek downstream.

3.3.13.1 No Action
Under the No Action Alternative, the Project would not be built. This would have no effect on water rights.

3.3.13.2 Proposed Action
Under the Proposed Action Alternative, there would be no changes to the allowed beneficial uses of WIC water rights. However, the conserved water would allow WIC to fully utilize its water rights due to elimination of water losses associated with seepage and evaporation.

3.3.14 Flood Control
The WIC's canal system does not serve as a flood control facility. However, it can collect runoff as it has historically.

3.3.14.1 No Action
Under the No Action Alternative, the Project would not be built and there would be no changes.

3.3.14.2 Proposed Action
Under the Proposed Action Alternative, the canal system would remain open and therefore would be available to carry any stormwater or runoff. This would indeed be a beneficial effect of building the pipeline and abandoning the canal.

3.4 Indian Trust Assets

Indian Trust Assets are legal interests in property held in trust by the United States for Federally recognized Indian Tribes or Indian individuals. Assets can be real property, physical assets, or intangible property rights, such as lands, minerals, hunting and fishing rights, and water rights. The United States has an Indian trust responsibility to protect and maintain rights reserved by or granted to such tribes or individuals by treaties, statutes, and executive orders. These rights are sometimes further interpreted through court decisions and regulations. This trust responsibility requires that all Federal agencies take all actions reasonably necessary to protect trust assets. Reclamation carries out its activities in a manner which protects these assets and avoids adverse impacts when possible. When impacts cannot be avoided, Reclamation would provide appropriate mitigation or compensation. Implementation of the Proposed Action would have no foreseeable negative impacts on Indian Trust Assets.

3.5 Environmental Justice

Executive Order 12898, established Environmental Justice as a Federal agency priority to ensure that minority and low-income groups are not disproportionately affected by Federal actions. Implementation of the Proposed Action would not disproportionately (unequally) affect any low-income or minority communities within the Project area. The reason for this is that the proposed Project would not involve major facility construction, population relocation, health hazards, hazardous waste, property takings, or substantial economic impacts. This action would therefore have no adverse human health or environmental effects on minority and low-income populations.

3.6 Cumulative Effects

In addition to Project-specific impacts, Reclamation analyzed the potential for significant cumulative impacts to resources affected by the Project and by other past, present, and reasonably foreseeable activities within the watershed. According to the Council on Environmental Quality's regulations for implementing NEPA (50 CFR §1508.7), a “cumulative impact” is an impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. It focuses on whether the Proposed Action, considered together with any known or reasonably foreseeable actions by Reclamation, other Federal or state agencies, or some other entity combined may cause an effect.

Based on resource specialists' review of the Proposed Action, Reclamation has determined that this action would not have a significant adverse cumulative effect on any resources.

3.7 Summary of Environmental Effects

Table 3-3 summarizes environmental effects under the No Action and the Proposed Action Alternatives.

Table 3-3
Summary of Environmental Effects

Project Resource	No Action	Proposed Action
Geology and Soils Resources	No Effect	Minor Temporary Impacts
Visual Resource	No Effect	Permanent Impacts
Cultural Resources	No Effect	No Effect
Hydrology	No Effect	No Effect
Water Quality	No Effect	Minor Temporary Impacts
Health, Safety, Air Quality, and Noise	No Effect	Minor Temporary Impacts
Wetland, Riparian, Noxious Weeds, and Existing Vegetation	No Effect	Permanent Impacts
Wildlife Resources	No Effect	Minor Temporary Impacts
Aquatic Resources	No Effect	No Effect
Threatened and Endangered Species, Sensitive Species	No Effect	Minor Temporary Impacts
Socioeconomics	No Effect	No Effect
Access and Transportation	No Effect	Minor Temporary Impacts
Water Rights	No Effect	No Effect
Flood Control	No Effect	No Effect
Indian Trust Assets	No Effect	No Effect
Environmental Justice	No Effect	No Effect
Cumulative Effects	No Effect	No Effect

Chapter 4 Environmental Commitments

Environmental Commitments, along with Minimization Measures in Section 2.6 have been developed to lessen the potential adverse effects of the Proposed Action.

4.1 Environmental Commitments

The following environmental commitments would be implemented as an integral part of the Proposed Action.

1. **Additional Analyses –** If the Proposed Action were to change significantly from that described in the EA, because of additional or new information, or if other construction areas are required outside the areas analyzed in this EA, additional environmental analysis including cultural and paleontological analyses would be undertaken if necessary.

2. **Construction Restrictions** – Construction and staging activities would be confined to previously disturbed areas, to the extent practicable.

3. **Public Access** – Activity areas would be closed to public access during construction. The WIC would coordinate with contractor's personnel, as necessary, to ensure public safety.

4. **Invasive Species** – Appropriate steps would be taken to prevent the spread of, and to otherwise control, undesirable plants and animals within areas affected by construction activities. Equipment used for the project would be inspected for reproductive and vegetative parts, foreign soil, mud or other debris that may cause the spread of weeds, invasive species and other pests. Such material would be removed before moving vehicles and equipment. Upon the completion of work, decontamination would be performed within the work area before the vehicle and/or equipment are removed from the project site.

   The WIC would make periodic inspections following vegetation of disturbed areas to locate and control populations of noxious weeds, if present. All seed used for restoration would be certified "noxious weed free" before use. If needed, the County Weed Control

Department could be contacted to provide services to control the spread of noxious weeds.

5. **Vegetation** – Design and treatment activities would ensure that vegetation would be protected with no long term adverse effects. Staging areas would be in previously disturbed areas to the extent possible.

6. **Raptor and Migratory Bird Guidelines** – The WIC would adhere to the USFWS Raptor Guidelines for Utah (Romin and Muck 2002) by placing seasonal and spatial "no construction" buffers, along with daily timing restrictions around all active raptor nests or winter roosting bald eagles. If unknown nests are located during construction, the same guidelines would be implemented.

   In the event that construction or any other work would occur during the nesting season of any migratory bird, a pre-construction survey would take place to identify nest sites. If found, a buffer would be put in place to protect them during the nesting and pre-fledging seasons. Those buffers would follow the USFWS Raptor Guidelines for Utah or a standard buffer for migratory birds as designated by a qualified Reclamation biologist (usually 100 feet, depending on topography and vegetation).

7. **Cultural Resources** – Any person who knows or has reason to know that he/she has inadvertently discovered possible human remains on Federal land, he/she must provide immediate telephone notification of the discovery to Reclamation's Provo Area Office archaeologist. Work would stop until the proper authorities are able to assess the situation onsite. This action would promptly be followed by written confirmation to the responsible Federal agency official, with respect to Federal lands. SHPO and interested Native American Tribal representatives would be promptly notified. Consultation would begin immediately. This requirement is prescribed under the Native American Graves Protection and Repatriation Act (43 CFR Part 10) and the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470).

8. **Air Quality** – Best Management Practices (BMP) would be followed to mitigate for temporary impact on air quality due to construction related activities. These may include the application of dust suppressants and watering to control fugitive dust; minimizing the extent of disturbed surface; during times of high wind, restricting earthwork activities; and limiting the use of, and speeds on, unimproved road surfaces.

9. **Wetlands –** The WIC would work with the State of Utah DWRi on a stream alteration permit. It will be determined what measures need to be taken to avoid any and all wetlands where able. If a wetland area is relatively unavoidable, there would be consultation with the appropriate agencies so as to minimize surface and immediate subsurface integrity. A USACE 404 permit would be obtained prior to the discharge of any dredged or fill material into waters of the United States including wetlands.

Chapter 5 Consultation and Coordination

5.1 Introduction

This chapter details consultation and coordination between Reclamation and other Federal, state, and local Government Agencies, Native American Tribes, and the public during the preparation of this EA. Compliance with NEPA, is a Federal responsibility that involves the participation of all of these entities in the planning process. The NEPA requires full disclosure about major actions taken by Federal agencies and accompanying alternatives, impacts, and potential mitigation of impacts.

5.2 Public Involvement

A public open house meeting to discuss the proposed project is scheduled to be held on Monday July 11, 2016, from 5:30 pm to 7:00 pm at the Woodruff Town Hall located at 195 S. Main, Woodruff, Utah 84086.

The draft EA will be provided to the public and government agencies for a 30-day comment period. All comments will be considered and addressed in the Final EA. Comments will be maintained in the Project administrative record and available for public review.

5.3 Native American Consultation

Reclamation conducted Native American consultation throughout the public involvement process. A consultation letter and copy of the Class III Cultural Resource Inventory Report was sent to the Ute Indian Tribe of the Uintah and Ouray Reservation, the Ute Mountain Tribe of the Ute Mountain Reservation, the Southern Ute Indian Tribe of the Southern Ute Reservation, the Northwestern Band of Shoshoni Nation of Utah, the Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho, and the Shoshone Tribe of the Wind River Reservation during the week of June 13, 2016. This consultation was conducted in compliance with 36 CFR 800.2(c)(2) on a government-to-government basis. Through this effort the tribe is given a reasonable opportunity to identify any concerns about historic properties; to advise on the identification and evaluation of historic properties, including those of traditional religious and cultural importance; to express their views on the effects of the Proposed Action on such properties; and to participate in the resolution of adverse effects.

5.4 Utah Geological Survey

The Utah Geological Survey (UGS) was contacted on December 2, 2015. The assistant to the State Paleontologist reviewed the Project area and determined that the APE is not a paleontological sensitive area.

5.5 Utah State Historic Preservation Office

A copy of the Class III Cultural Resource Inventory Report and a determination of historic properties affected for the Proposed Action was submitted to the SHPO during the week of June 13, 2016.

5.6 Bureau of Indian Affairs

Dr. Zachary Nelson conducted a review of the Current American Indian/Alaska Native/Native Hawaiian Areas (AIANNH) National Shapefile which indicated that no ITAs were located near the Project area.

5.7 US Fish and Wildlife Service

The USFWS was contacted on November 25, 2015, and an IPaC report was obtained for the APE.

5.8 Utah Division of Wildlife Resources

The UDWR was contacted on November 30, 2015. A response letter was received on December 7, 2015, with information on the State's Special Status Species.

5.9 US Army Corps of Engineers

The WIC is preparing stream alteration permits through the DWRi. As part of this process, USACE will be consulted. A wetland delineation will be submitted to the USACE to determine jurisdiction of the wetland area located within the pipeline alignment.

Chapter 6 Preparers

The following is a list of preparers who participated in the development of the EA. They include environmental summary preparers, Reclamation team members, and Federal, State and WIC members.

Table 6-1
Environmental Summary Preparers

Name	Title	Company
Ms. Monique Robbins	Senior Engineer, Project Manager, Writing, Editing	Franson Civil Engineers Inc.
Mr. Jon Baxter	Archeologist	Bighorn Archaeological Consultants, LLC
Mr. Bryan Watt	Wetland	Bighorn Archaeological Consultants, LLC

Table 6-2
Reclamation Team Members

Name	Title	Company
Ms. Linda Morrey	Secretary	Bureau of Reclamation
Mr. Rick Baxter	ESA Coordinator	Bureau of Reclamation
Mr. Scott Blake	Recreation and Visual	Bureau of Reclamation
Mr. Peter Crookston	NEPA Coordinator	Bureau of Reclamation
Mr. Jeff Hearty	Economist	Bureau of Reclamation
Mr. Zachary Nelson	Archaeologist	Bureau of Reclamation
Mr. Justin Record	Water Rights	Bureau of Reclamation
Mr. David Snyder	CWA Coordinator	Bureau of Reclamation

Table 6-3
Federal, State or District Members

Name	Title	Company
Mr. Wes Tingey	President	Woodruff Irrigating Company
Ms. Sarah Lindsey	Senior GIS Analysist	Utah Division of Wildlife Resources
Ms. Martha Hayden	Assistant State Paleontologist	Utah Geological Survey
Ms. Jena Lewinsohn	Terrestrial Botanist	U.S. Fish and Wildlife Service

Chapter 7 Acronyms and Abbreviations

Acronym/Abbreviations	Meaning
AIANNH	American Indian/Alaska Native/Native Hawaiian Areas
APE	Area of Potential Effect
BIA	Bureau of Indian Affairs
Bighorn	Bighorn Archaeological Consultants
CFR	Code of Federal Regulations
CFS	Cubic Feet Per Second
CWA	Clean Water Act
DNR	Utah Department of Natural Resources
DWQ	Utah Division of Water Quality
DWRi	Utah Division of Water Rights
EA	Environmental Assessment
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
HDPE	High Density Polyethylene
IPaC	Information for Planning and Conservation
ITA	Indian Trust Assets
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O&M	Operation and Maintenance
Project	Woodruff Pressurized Irrigation Project
PSI	pounds per square inch
PVC	Polyvinyl Chloride
Reclamation	U.S. Bureau of Reclamation
SHPO	Utah State Historic Preservation Office
SOP	Standard Operating Procedures
SWPPP	Storm Water Pollution Prevention Plan
UAC	Utah Administrative Code
UDWR	Utah Division of Wildlife Resources
UGS	Utah Geological Survey
UPDES	Utah Pollutant Discharge Elimination System
USACE	U.S. Army Corps of Engineers
U.S.C	United States Code
USFWS	U.S. Fish and Wildlife Service
WIC	Woodruff Irrigating Company

Chapter 8 References

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Chapter 9 Appendices

9.1 Appendix A – Meeting Minutes

Oct 8 2014

General Stockholder meeting 7pm

Wes Introduced Eric Frausen of Frausen Engineering He has been hired them to midigate The leaking Birch creek dam and to set up coplan to find the leak in the dam, wes talked about the why we want put the water in pipe because of the effiency of our Irrigation system Eric Frausen Talked to ?? about what a water smart Grant is and how the Bureau of Reclamation look at what a Project will accomplish energy savings water conversation energy projection Motion made TO Meet again next week to vote whether Go ahead TO apply for grant Those present wes Tingey Bill Stuart Steve Huffaker George Frazier Linda Downing Wally Schulthess Melvin Eastman, Jason Chandler Teena Chandler Larry Cornia Eric Anderson (DWR) Jared Huffaker Todd Stacey craig Shoulton GR Peart Kerry Stacey Kochl Brown Phil Eastman Willie Eastman Louie Stuart Mark Cornia Tyler Stuart Kord Feller Martin Feller Norm Weston Bill Cox Dale Frazier Kathy Frazier Rod Hoffman Geo Peart Kent Stuart Jack Bell carl Eastman Clint Cornia Tammie Cornia Craig Kennedy Hardy Downing Bo Holman Jef Jensen

Read and approved

Oct 15 2014

Special Stockholder meeting

Read minute of last week motion by

to approve minuts

Wally 2nd Bill asked for Proxies

Geo ask question about if the ~~[illegible]~~ the

board has discussed starting a separate

company for gravity discussed the cost

of pipeline a vote was taken by

with Proxies

Shares a total of 5601.95 shares

were voted with 3778.42 for the

Proposal to have Frazier Engineering

Pursue the fesibility of a pipeline

and a grant to help pay for it if

it is Fesible, Those Present was

Tinsey Bell Stuart Steve Huffaker

George Frazier Melvin Eastman Linda

Downing, Wallace Schultnes, Kathy Frazier

Ocie Frazier [illegible] Tammie Cornn

Marten Feller Peggy Feller Arlo Eastman

Phil Eastman Lola Eastman Willie Eastman

Geo [illegible] Craig Kennedy Craig Shewalter

Hardy Downing Todd Stacy Jason Chandler

Ron Huffaker Jack Bill [illegible] Bell

april 8 2015

Annual meeting Read minutes gave

Financial Report 31,782.84 in checking 35681.2

assessments not paid official name of

woodruff Irrigation company Reservoir spilled

on april 2 Birch creek on 6905 spills

at Birch creek has developed leaks

next to outlet, Dam safety has put a

[illegible] restriction and had to hire

an engineer was explained how we

need monitor it at certain levels to see

if it leaks, was talked about

the pipeline, and have been approved by

Water Resources to loan 3.2 million

have applied for a 1 million water smart

grant, had a long discussion on the

pipeline answered what we know but

lot of things we don't know

opened ~~motion~~ nomination Craig motion

Todd stacy sec, existing board in

Tonny, Craig Shoveller, Kerry Stacey

were nominated to take George's place sel Bd

George Peart made motion to take two votes

to get a majority for the board member

Tonny putnam was voted on to replace

George Frazer, present Wes Bill Steve Melvin

Kelly Linda Craig Kennedy Ron Martin Peggy Lenny Geo

Seth Scott Cornie G R Phil Loba Ocie Mark & Todd S Kerr

approved 3/7/16 [illegible]

June 10 2015 Chad Brown

Special meeting of stockholden

Read mintes of 15 oct meeting

Turned Time to Erick Fresen tell

about Watersmart grant ~~want~~ Need the

contract signed by Sept 30 150 applied

about 40 were awarded in western US

with 3 for million Eric went through

questions sent to him the cost will

be about $30 per share. cost to maintain

the pipe line a little less than a ditch

system the system will Probly start

next aug for use in 2017. Erik

answered a list of question The board

sent to him The first is the environment

assesments, that need to be done

need to keep track of Time, mileage

and Fesebility for in Kind reimbursement

for company share

Those present Wes Tingey Bill Stuart Steve Hefflefinger

Wallace Schulthes Lanny Putnam Melvin Eastman Linda

Downing Kerry Stacey Kathy Frazier Amanda Frazier

Ocie Freizer Craig Showalter Craig Kennedy Stan

Fraudson Seth Schaltness Chris Schultheiss Phil Eastman

Lola Eastman Arlo Eastman Clint Cornia Tammy Cornia

Jack Bell Anise Bell Erik Anderson Laurie Stuart Parker

Stuart Tyler Stuart Erik Fresen Chad Brown

Kent Stuart Jean Pecent G R Pecont Steve Kominski Ro Holman

Ferson &

ike Chandler

ebeden Cornia

Bille Eastman

July 29 2015

Special Stockholder meeting, Read minutes of Oct 15 2015 motion by Wallace sec by Bill to approved the minutes was a Read agenda

We have got a grant of 1 million dollars Loan approved from Water Resources of 3.5 million will also be 2 minute comment cost per share was about $30 was asked a gathering pond will probly in the corner of Melons, Geo made comment about lost water of about 40 %, he figures above the splitter is not Lossing but leaving a return Flow, Erik Anderson says Duk will not vote because they don't have land, Wally want everyone in an equal delivery Kathy wants to split the company the company has power by majority to say how water is delivered was say he has tryed to increase Storage the Creels this the most Feasable

5189.9 in attend's 3009.82 For 1720.08 against 460 Abstained was Bill Stone wally Linda Melon Larry Craig Kennedy Jack Bell Erik Anderson Phil Eastman Arlo Eastman Wille Eastman Mark Cornia, Jason Eriksen Kathy Frazier Dale Frazier Tamara Cornia Todd Stayner Clint Cornia Norman Weston

Read & approved

Feb 7 2016

Board meeting with Chad Brown concerning Easement and where the Turnout will be. What over the drainage where the pipeline went, Chad says it would cost about 1.6 million to run the pipe from First hydro plant to the where the other line starts. Need $10000 to apply for pacific power to next stop and Freeman need another company Rutrysety with experticity what is need for getting power into system. Tabled Wally to approve Bill Second

Each Shareholder met with the engineer to determined where there outlets would be. Those present Wes Bill Steve Lenny Melvin Lix Wally Maureen Geo Peart Hardy Downing Alvo Eastman Peggy Fellen Wesey Cornia Mark Cornia Clint Cornia Braden Cornia Rusty Cornia Ron Hoffman Ken Vernon Craig Kennedy Kerry Stacey Chris Schulthes Ocie Frazer Cathy Kent Stewart Martin Fellen Steve Kennedy Larry Cornia Ren Huffaker Emilise Bell